

Cite as: "Driesmans, K., Vandenbosch, L., & Eggermont, S. (2014). Playing a Videogame with a Sexualized Female Character Increases Adolescents' Rape Myth Acceptance and Tolerance Toward Sexual Harassment. *Games for Health Journal*. doi 10.1089/g4h.2014.0055"

Playing a Videogame with a Sexualized Female Character Increases Adolescents' Rape Myth
Acceptance and Tolerance Toward Sexual Harassment

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Abstract

Objective: Prior research has documented favorable effects of active and educational videogames among adolescents. However, research on potential negative effects of such games is limited. Scholars have called attention to games portraying sexualized female characters. The purpose of the current study was to experimentally investigate the effect of playing a videogame with a sexualized female character on adolescents' acceptance of rape myths and tolerance for sexual harassment.

Materials and Methods: Fifty-seven secondary school pupils, 12-15 years of age, participated in a 2 (gender: boys versus girls) x 2 (game character: nonsexualized versus sexualized female) factorial design experiment. Participants played a game for 15 minutes and were randomly assigned to one of the two game characters. Afterward, they completed established scales to assess rape myth acceptance and tolerance for sexual harassment.

Results: Analyses of variance showed greater acceptance of rape myths ($P = 0.039$) and greater tolerance of sexual harassment ($P = 0.046$) in adolescents who played with the sexualized woman compared to adolescents in the control condition. We did not find significant differences between boys and girls or any interaction effect between gender and game character.

Conclusion: Findings suggest that gameplaying with a sexualized woman may increase adolescents' acceptance of rape myths and tolerance for sexual harassment. These findings highlight attention to the use of sexualized female game characters in (educational and active) videogames that target adolescents.

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Introduction

Research among adolescents has demonstrated the positive potential of active and educational videogames to, for example, increase physical activity (1), weight loss (2), and general health knowledge (3,4). However, game characters in these videogames are sometimes depicted in a sexualized manner by, for instance, wearing sexually provocative attire (5,6); for example, Yuni in “Dance Dance Revolution Extreme” (Konami Corporation, Tokyo, Japan) and Power Pap in “Adventures in Sex City” (Middlesex-London Health Unit, London, ON, Canada). Active and educational games containing sexualized characters may have detrimental effects besides the beneficial effects frequently documented in prior research.

The current study experimentally examines the effect of a sexualized female game character on adolescents' acceptance of rape myths and tolerance for sexual harassment. Rape myth acceptance refers to the degree to which someone endorses false, but widely and persistently held, beliefs about rape that approve male sexual aggression against women (7). Research on beliefs and attitudes regarding sexual aggression is particularly relevant because of the consequences of endorsing such beliefs and attitudes. For instance, research among men has found a positive correlation between the tolerance for sexual harassment and the likelihood to commit rape (8). In addition, a study of Bohner et al. (9) suggests that men's acceptance of rape myths heightens rape proclivity. Research on the consequences and development of these attitudes should, however, not be limited to adults as scholars have reported on peer-to-peer sexual harassment (10) and sexual offenses committed by adolescents (11).

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Scholars have highlighted the role media can play in adolescents' sexual socialization and, particularly, in adolescents' socialization toward antisocial sexual attitudes, such as approval of sexual violence (12). Media may increase antisocial sexual attitudes by rendering related gender stereotypes more accessible. This effect can be explained by schema theory. According to this theory, the human memory is organized in cognitive structures in which related concepts are connected through associative pathways. The activation of one concept can activate related concepts, which, in turn, can activate other concepts. The cognitive structures in which gender related information is organized are called gender schemas (13). These gender schemas include all the information (e.g., beliefs and expectations) typically associated with men and women. We argue that exposure to sexualized women activates specific parts of the female gender schema that include the gender stereotype of women as sexual objects who are valued only for their sexual appeal. The perception of women as sexual objects is likely to be related to false beliefs about sexual aggression such as "women who dress or act seductively provoke rape" (14). Because these false beliefs frequently include (partial) justification of sexual aggression against women, they may increase the acceptance of sexual violence.

Empirical evidence has supported relationships between sexualizing media use and acceptance of sexual aggression. Research in adolescents has shown that exposure to televised music videos (15) and sexually explicit media (16) was associated with rape myth acceptance and tolerance toward sexual harassment. In addition, studies in college students have demonstrated that tolerance for sexual harassment (17) and acceptance of rape myths (18) were increased after exposure to sexualized game characters.

To the best of our knowledge, research has not yet explored such effects in adolescents. However, adolescents spend on average 13.2 hours per week on videogames (19) and female sexualized characters are highly prevalent in games that are popular with

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adolescents (5). The importance of media in adolescents' sexual socialization (12) together with the high likelihood of exposure to sexualized games highlights the necessity of studying such effects in adolescents. Therefore, the current experiment investigates the hypothesis that after playing a videogame with a female sexualized character, adolescents demonstrate higher levels of rape myth acceptance and tolerance toward sexual harassment than adolescents who played with a nonsexualized character.

Moreover, our second hypothesis predicts that the proposed effects will be more pronounced in boys. This expectation is in line with research reporting a stronger effect of sexualized media content among men. In particular, prior research has shown that exposure to sexualized women in advertisements increases the endorsement of stereotypical beliefs about sex roles and rape myth acceptance in men, but not in women (20). Also, men are in general more likely to support sexual beliefs that are adversarial for women. For instance, research has shown that men are generally more tolerant of sexual harassment and have more false beliefs about rape than women (8). Aversive attitudes toward and beliefs about women are thus more accessible in men's memory and may therefore also become more easily activated in men after exposure to sexualized women. Consequently, the current experiment investigates the hypothesis that after playing a videogame with a female sexualized character boys demonstrate higher levels of rape myth acceptance and tolerance toward sexual harassment than girls.

Materials and Methods

Fifty-seven Belgian secondary school pupils (22 girls) participated in a Institutional Review Board-approved between-subjects experiment. Pupils of the selected age group of 12-15 years old (*mean* = 13.25, *SD* = .58) who were present at the time of the researcher's visit were asked to participate in a study on videogames. Each research session was run by a male

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research assistant and all male and female participants were stationed individually at a computer in a classroom. In order to reduce the likelihood of socially desirable answers, participants were not seated directly next to each other and girls and boys were seated in separate parts in the classroom. Participants were told that the study was designed to improve the production value of videogames (through the development of game preference profiles). The questionnaire in the second part of this study included filler questions to increase the credibility of this cover story.

The participants played “The Story of Arado” for 15 minutes (starting from the beginning of the game). None of the participants had prior experience with the game. “The Story of Arado” is a free one-player adventure game challenging a warrior to pass through a forest in which the warrior encounters several enemies. The goal is to kill as many enemies as possible without being damaged. Participants were randomly assigned to play the game either with a female sexualized character ($n = 29$) or with a nonsexualized character ($n = 28$). The female character was considered to be portrayed in a sexualized manner as she wears tight, revealing clothes that emphasize her slim body (5,21) (see figure 1). The nonsexualized character, called the Gunner, wears loose-fitting clothes covering most of the body (see figure 2). The face is also mostly covered making it unclear whether the Gunner is male or female. Participants were instructed to enlarge the game screen as much as possible. Even though the game characters mostly appear rather small, there are moments that they appear larger (e.g., in the beginning when the character provides the gamer with instructions about the game).

Immediately afterward, in presence of the researcher, participants completed a questionnaire including filler questions related to the cover story, demographic information, the Rape Myth Scale (22) and the Tolerance for Sexual Harassment Inventory (23). The statements of both scales were adjusted to match the age group. This first scale measures the acceptance of false beliefs that deny and justify male sexual aggression. Two items that were

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not relevant for this study were omitted (i.e., “Rape mainly occurs on the ‘bad’ side of town” and “A rapist is more likely to be Black or Hispanic than White”). The remaining 17 items were scored on a 7-point scale (from 1 = totally disagree to 7 = totally agree). An example item is “Boys don't usually intend to force sex on a girl, but sometimes they get too sexually carried away.” All items were averaged ($mean = 3.57$, $SD = 1.35$; Cronbach's $\alpha = .94$). Next participants indicated their agreement on the 10 items of the Tolerance for Sexual Harassment Inventory (23) on a 7-point scale (from 1 = totally disagree to 7 = totally agree). A sample item is “Most girls who are sexually insulted by a boy provoke his behavior by the way they talk, act, or dress.” All items were averaged ($mean = 3.81$, $SD = 1.36$; Cronbach's $\alpha = .88$).

Results

An analysis of variance with game character (sexualized female character vs. nonsexualized Gunner) and participant's gender (male vs. female) as between-subjects factors revealed a significant main effect of the game character on rape myth acceptance. More specifically, adolescents playing the game with the sexualized female character ($mean = 3.98$, $SD = 1.41$) were more likely to accept rape myths than those playing with the nonsexualized Gunner ($mean = 3.16$, $SD = 1.16$), $F(1, 53) = 4.50$, $P = 0.039$, $\eta^2 = 0.078$. No significant main effect of gender, $F(1, 53) = 1.89$, $P = 0.175$, or an interaction effect between gender and condition, $F(1, 53) = 0.16$, $P = 0.689$, was found. A second analysis of variance tested the influence of the game character and gender on tolerance for sexual harassment. The analysis indicated that adolescents playing with the female sexualized character ($mean = 4.21$, $SD = 1.47$) were more tolerant for sexual harassment ($mean = 3.43$, $SD = 1.17$) than those in the control condition, $F(1, 46) = 4.22$, $P = 0.046$, $\eta^2 = 0.084$. Again, there was no main effect of gender, $F(1, 46) = 1.31$, $P = 0.259$, or an interaction effect between gender and condition, $F(1, 46) = 0.46$, $P = 0.502$.

Discussion

Even though research among adolescents on the beneficial effects of active and educational games is prevalent, research on potential unintended negative consequences of these games is limited. This study is the first to our knowledge to investigate the effects of a sexualized female game character on adolescents' attitudes and beliefs on sexual aggression. The findings indicate that after playing a videogame with a sexualized female character, adolescents showed greater acceptance of rape myths and greater tolerance of sexual harassment compared to adolescents in the control condition. Moreover, contrary to our expectation, boys and girls were found to be affected similarly. Possibly, this can be explained by the lack of difference for acceptance of rape myths and tolerance of sexual harassment between boys and girls: the results revealed that boys and girls scored similarly on these variables. When boys and girls have similar levels of acceptance of rape myths and tolerance of sexual harassment, playing a videogame with a sexualized female character may to a similar extent activate aversive schemas about women in boys and girls. However, further research is needed to test this explanation more directly. Furthermore, this research may also consider to include a larger number of female participants in order to rule out the possibility that no interaction effects with gender were found as a result of the limited number of girls ($n = 22$) included in this study.

The results thus support research to be aware of the potential consequences of playing with sexualized female character in both boys and girls. Given the negative consequences of a high level of tolerance for sexual harassment and a great acceptance of rape myths (e.g., higher rape proclivity (9)), knowledge about factors that affect these antisocial sexual attitudes is important. The current experiment focused on adolescents as research has shown that this age group also engages in sexually harassing and sexually offensive behavior (10,11).

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In addition, active and educational games targeting adolescents sometimes include female game characters that are depicted in a sexualized way. Therefore, even though this study includes only one game, the results are relevant.

Moreover, we found that 15 minutes of gameplay with a sexualized female character suffices to result in negative effects. In most studies examining the potential of games for health-related behavior (e.g., physical activity) and attitude change (e.g., in school-based interventions), participants play for many hours spread over a period of several weeks or even months (1). If these games contain female sexualized characters, they may have strong and possibly long-term negative effects besides the documented beneficial effects. Future research is needed to test this assumption.

The current study was strengthened by its focus on boys and girls between the age of 12 and 15 years old, but it was limited in its power to test the potential moderating role of age. Age has been suggested to moderate media effects in adolescents (12). It could be expected that the observed detrimental effects are stronger for young adolescents compared with older adolescents. Because most participants in the current study are 13 (76.79%) and 14 (16.07%) years old, the variation in age was considered too limited to test this moderating influence of age. To examine the role of age as a moderator, future research should include a larger age group. In addition, further research should aim for a larger sample size.

Furthermore, our study aimed to compare a sexualized female character with a nonsexualized character. As the face and body of the nonsexualized character were mostly covered, we assumed the gender of this character would remain ambiguous for the participants. It is important to note, however, that the neutral character may nevertheless have been perceived as a male character. This could potentially confound the *gender of the character* with the *sexualized characteristics of the character*. Therefore, the design used in the current study cannot adequately rule out that simply exposure to a female character or the

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combination of exposure to a character that was a woman and being sexualized accounted for the effects. Although prior research has suggested that exposure to a nonsexualized female character does not increase rape myth acceptance (e.g., 17), future research is needed to exclude such alternative explanations and should include a sexualized female character, a sexualized male character, a nonsexualized female character, and a nonsexualized male character.

Taken together, this study advances our understanding of the role videogames can play in adolescents' socialization toward adversarial sexual attitudes. The results point to the importance of taking account of the type of characters presented in active and educational videogames and suggests that videogame designers should avoid using sexualized female game characters in games for adolescents.

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Figure 1. Sexualized female character



Figure 2. Nonsexualized character